ABSTRACT

A susceptor (16) on which a predetermined target wafer (W) is mounted, and a support table (15) for supporting the susceptor (16) are provided at generally the center in a chamber (2). A process gas supply device (4) supplies a process gas for processing the wafer (W) into the chamber (2). A first high-frequency power source (5) and a second high-frequency power source (7) generate plasma of the supplied process gas by applying predetermined high-frequency voltages respectively, and process the wafer (W). A dike (18) having a grounded conductive member (18a) is provided around the support table (15) and the susceptor (16), and the generated plasma is thereby confined in the area above the wafer (W) mounted on the susceptor (16).